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Contribution by International Council for Local Environmental Initiatives**

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I. Introduction

1. Local governments are key stakeholders in the implementation of Agenda 21 and the achievement of the Millennium Development Goals. They certainly are directly impacted by the way in which sustainable development is addressed in the thematic issues of agriculture, land, drought, rural development and desertification. Local authorities in Africa are particularly vulnerable where these thematic issues are concerned.

2. Local authorities are not only in and of themselves impacted by agriculture, land management, drought and desertification, but directly impact these issues by virtue of their size and population.

3. Urban areas have a profound influence on the nature and extent of resource use and resource flows, in cities themselves and throughout the world. Urban form and the density of settlement determine the demand of an urban population for energy in the transportation and buildings sector. Reflecting the proximity of cities to bodies of freshwater, rich agricultural soils and sensitive coastal areas, urban land use practices have a dramatic impact on global freshwater resources, biodiversity and patterns of food supply. The unsustainable land practices of the people in a city can impose demands not only on its rural periphery but on landscapes in distant regions and continents.

4. More than half of the global population now lives in cities, and it is predicted that by 2030, 60 per cent of all people will live in urban communities. Indeed, we are moving into an era of mega-cities of 10 million and more inhabitants. Today, there are 20 mega-cities whose populations easily exceed that of some countries.

5. This paper evaluates progress on the thematic issues from the perspective of local authorities, showcases best practices, identifies some of the constraints and obstacles to success, and offers some conditions needed for effective implementation.

II. Agriculture

A. Evaluation of progress

6. Urban agriculture is critical in feeding a growing population. The Food and Agriculture Organization of the United Nations has estimated that as many as two thirds of urban households practice urban food production, either on land set aside for that purpose, or in vacant lots and other spaces.

7. The benefits of agricultural practices in urban environments include the provision of fresh food sustenance and of employment, in some cases, the maintenance of green spaces within the built-up environment, and the reduction of the energy used in transportation and storage. This becomes even more important as urban centres expand, ironically, doing so by encroaching on valuable farmland.

Local examples

1. Dakar, Senegal: rooftop agriculture

With the population of Dakar increasing by an average of 120,000 people per year, the demand for urban services has increased, as has the demand for food. As a result, urban agriculture has become more important, and it is now estimated that urban agriculture provides 60 per cent of the vegetables consumed in Dakar.

In Dakar, flat concrete rooftops, which form a veritable city landscape, are being converted to rooftop gardens. Households are planting these gardens to meet their own nutritional needs and also to supplement their income by selling produce at local markets.

Website: www.fao.org/NEWS/2002/020102-e.htm

2. Rosario, Argentina: urban agriculture programme

An urban agriculture programme was initiated in response to a deepening economic crisis which caused the number of people living in poverty to increase to encompass 60 per cent of the local population.

The programme provided a sustainable means of food production by establishing community gardens that not only provide food for low-income families, but also create a source of income, especially for women. A production plan has even been developed to supply fresh produce to soup kitchens and schools, through the framework of a common social network.

Urban agriculture has now become a local government public policy.

B. Constraints and obstacles

8. Local governments face the following challenges:

(a) Agricultural food production has typically been assumed to be a rural issue, and thus not a priority issue in relation to other urban issues such as housing, transportation, safety and infrastructure;

(b) In cities in developed countries, urban food production may be less sustainable in practice than its alternatives, due to household-level energy consumption patterns, although there is much scope for changing practices towards sustainability;

(c) In developing countries, urban agriculture is often assumed to be a subsistence activity engaged in by poorer residents, but evidence suggests it is increasingly an activity of high- and middle-income households who farm for commercial purposes. As a result, the disadvantaged do not have access to land.

C. Conditions needed for effective implementation

9. Urban agriculture requires the following conditions for effective implementation:

(a) Urban agriculture needs to be integrated into urban planning and development;

(b) Urban agriculture needs to be promoted and recognized for its important role in poverty reduction and proper nutrition, among other issues.

III. Land and rural development

A. Evaluation of progress

10. Land-use management directly impacts the use of resources, not only of land but also water, energy and air quality. Land development impacts local biodiversity, air quality and water flows. Water that is usually filtered through the soil to recharge aquifers and provide underground flows to rivers, streams and lakes becomes polluted run-off from the paved surfaces. Sprawling development therefore produces conditions that could lead to drought.

11. Additionally, the effects of sprawl extend beyond the use of energy for transportation and in buildings. Infrastructure costs are much higher than for compact development, as are the costs of delivering social services, including education. There are profound effects on the poor, the disabled, young people and the elderly, for example, who must find their homes within sprawling areas and who do not have ready access to transportation.

12. One solution has been to create higher densities. The development of dense, mixed-use neighbourhoods saves green spaces and increases energy and transportation efficiencies, while reducing infrastructure and service delivery costs. Often, densification programmes have taken place at the cost of green space, reducing space available for recreational purposes, and thereby increasing the heat island effect of cities. Urbanization brings an urban lifestyle to more people; one that is more resource-consumptive and increases pressures on the natural environment.

13. Another is the development of urban growth boundaries, promoting the efficient use of land, public facilities and services inside the boundary. The lack of expansion opportunities can result in positive, thoughtful development of the urban centre.

Local examples

3. Portland, Oregon, United States of America: urban growth boundary

Portland's urban growth boundary is a legal boundary that was established in 1979 to protect farm and forest lands from urban encroachment. The regulatory emphasis was, and continues to be, on protecting the economic viability of farms and farming.

Developed from this rural perspective, the boundaries undergo a periodic review to ensure that a 20-year supply of buildable land exists. By 1999, suburban development had reached the boundary in parts of the Portland metropolitan area, with future suburban growth to be accommodated either by expanding the boundary or through higher-density development. Therefore, while the boundary is not inflexible, in most locations it remains a fixed boundary.

4. Greater Amman municipality, Jordan: high-density mixed-use development

The Greater Amman municipality has established an interim growth strategy policy for high-density mixed-use development that will provide a framework for the long-term sustainability of the city.

The policy complements the vision for the Amman master plan, which works towards a city based on sustainable development principles that is green, liveable and social, and importantly, preserves the culture and heritage of the city. Elements of the growth strategy policy include:

(a) The identification of areas of the municipality suitable for high-density mixed-use development;

(b) The implementation of modern development guidelines and zoning controls that encourage new high-density mixed-use development;

(c) Avenues for the participation of the public and private sectors and civil society in the design of high-density mixed-use developments; and

(d) A new framework whereby the cost of infrastructure is shared, in an equitable way, between the investor and the community.

Website: www.ammancitygov.jo/english/master/m1.asp

5. Charlottesville, Virginia, United States of America: conservation development

Many developers in the United States of America are offering homes on working farms, creating communities on or adjoining farms, grazing livestock and making local food available. These projects are a form of conservation development, a movement that aims to balance growth with preservation that has been accepted by local governments in recent years as a way to maintain open space or rural character.

The developers of Bundoran Farm purchased an existing cattle farm and apple orchard, reserving about 1,000 acres for agriculture. Homeowners agree to subsidize the farm in slow years but can also earn revenue when it does well. Located only 20 minutes out of the major city of Charlottesville, the community has 2,300 acres, riding trails, two ponds and over 100 head of cattle.

Website: www.bundoranfarm.com

B. Constraints and obstacles

14. Local governments face the following challenges:

(a) Ineffective land-use policies;

(b) Strong influence by developers;

(c) In developing countries, a lack of effective urban investment, planning and management to deal with urban migration.

C. Conditions needed for effective implementation

15. Conditions needed for effective implementation in the area of land and rural development are:

(a) Support for the infrastructure needs of a growing migration of rural dwellers to bigger communities;

(b) Urban planning that is based on sustainable development principles.

IV. Drought

A. Evaluation of progress

16. While drought is a natural, recurrent climactic occurrence, the duration and severity of droughts, a result of instability in the global climate, are increasing globally. In urban areas, droughts are not simply one of the devastating impacts of this changing climate, but are also brought on as a result of wasteful water infrastructure and a lack of water demand management practices.

17. When drought occurs, it can have many far-reaching impacts. These impacts are often grouped as economic, environmental and social. The economic impacts include loss of income for urban agriculture and increased power costs. Environmental impacts include soil erosion and loss of water tables. Social impacts include health problems and potential conflicts.

Local examples

6. Laporiya, India: rainwater harvesting

This village in the northwest of India is a genuine oasis amid miles of arid and barren land. The air is thick with sand blown in from the Thar Desert located just 72 kilometres away.

Laporiya has adapted to the sparse water conditions and become self-sufficient in water needs through traditional rainwater harvesting systems. Simple techniques have tapped every path that water follows along naturally occurring watersheds. Villagers have rebuilt broken embankments, stored water in community ponds and repaired or constructed talaabs (masonry tanks for storing water) and earth percolation reservoirs (reservoirs built to store rainwater that percolates gradually into the nearby wells). These methods all serve to divert water to agricultural plots and pasturelands through simple canals and aqueducts.

To prevent waste and ensure ongoing water conservation, village leaders have turned to local lore and the forgotten customs and rituals of the region to make villagers understand the need to conserve water. Shrines and small temples dedicated to Hindu gods and goddesses have been built at each little tank and well, cultivating an understanding of the need to protect, preserve and rejuvenate natural resources.

Website: www.indiatogether.org/agriculture/articles/rjndrght.htm

7. Frisco, Texas, United States of America: landscaping ordinance

Frisco has a far-reaching landscaping ordinance that was the result of an extensive research and planning effort. Landscapes created and tended under the new legislation now use up to 50 per cent less water than previously.

Elements of the landscaping ordinance include:

(a) Plant species that are native to north Texas or adapted to its climate are allowed;

(b) Three inches of mulch are required in shrub beds and around trees;

(c) Evapotranspiration controllers are required (these turn on irrigation systems only when water is needed and adjust the amount depending on the time of year);

(d) Plants installed by homebuilders are required to survive stage 3 water restrictions, which mean one watering per week;

(e) Water allowances for mostly commercial developments are set based on the amount of landscaped area.

Website: www.ci.frisco.tx.us

8. Hornsby Shire, Australia: water development control plan

The administrative Council has helped the community reduce their water consumption through the implementation of their Sustainable water development control plan and best practice manual.

Since 1999, the plan has effectively influenced over 9,500 development applications, including multi-unit dwellings and new houses. As a result, these dwellings have incorporated dual-flush toilets, low-flow showerheads, tap flow restrictors and water-efficient dishwashers and washing machines. The Water development control plan also promotes water-efficient gardens and irrigation systems.

The installation of water-efficient devices has saved the community approximately 980,000 kilolitres in water use per year, and has stimulated community education regarding the need to conserve water resources.

Website: www.hornsby.nsw.gov.au

B. Constraints and obstacles

18. Local authorities often respond to drought through disaster and emergency management measures, instead of effectively monitoring and preparing for drought.

C. Conditions needed for effective implementation

19. With regard to drought, conditions needed for effective implementation are the following:

(a) Drought monitoring practices and policies, including early warning systems, need to be developed and implemented;

(b) Improvements need to be made in water service delivery, and to the infrastructure, to prevent leakage and waste;

(c) Water demand management, including voluntary restraints and enforced water saving, need to be developed and enforced;

(d) A local drought plan needs to be developed. The plan would include mitigation measures to reduce the impacts of drought, and establish a water rationing scheme when necessary;

(e) Land use planning must limit sprawl to protect underground aquifers and water tables;

(f) Xeriscaping, a type of landscaping around homes and businesses that uses a limited amount of water, needs to be promoted;

(g) Traditional rainwater harvesting methods need to be adopted, to store water when available and also to improve soil moisture management.

V. Desertification

A. Evaluation of progress

20. Desertification affects 70 per cent of all drylands, amounting to 3.6 billion hectares, about one quarter of the world's land area. Almost one in every six people in the world are affected — some 900 million people.

21. Desertification in rural areas is causing millions of rural dwellers in developing countries to migrate to urban areas each year because their land can no longer support them. The International Fund for Agricultural Development has stated that if nothing is done to stop the root causes of desertification, around 30 million rural dwellers could be forced out of their homes by 2009. Overwhelmingly, they make their way to the shanty areas of cities and put a huge strain on services such as housing, water supply, waste removal and treatment, health care and education.

22. The impacts of desertification, soil deterioration and the lack of water, have increasingly led to famine, disease and conflicts.

23. Local authorities in developed countries factor into this problem, as developed country consumption patterns and lifestyles impose demands through the global economy on these dryland areas.

Local examples

9. Mahbubnagar, India: sustainable agricultural practices

Since agriculture is the main livelihood in Mahbubnagar, the community has had to adopt sustainable agricultural practices to make efficient use of dwindling water resources. Adaptive and coping strategies have been successfully established to respond to the drought conditions.

Women's groups have successfully established small-scale income generating projects, including water-harvesting schemes, and have planted trees to protect the soil. Seed banks have been established to conserve the traditional indigenous seeds which are resistant to climate variability, and a grain bank provides food security in times of need.

The results of these actions have been dramatic; there has been a 40 per cent decline in the number of people in the district who migrate to larger towns every year.

10. Shenyang, China: desertification strategies

The arid north of China, the Mongolian Desert, is rapidly encroaching on Shenyang; the distance between city and desert has shrunk to only 48 kilometres, down from 100 kilometres in the year 2000.

With the support of China's national action programme to combat desertification, Shenyang and other Chinese cities are creating green shelterbelts and targeted plantings, planting windbreak forests to protect farmlands, establishing green corridors, revegetating sand sheets and reclaiming sandy land.

The city has established a wind-breaking and sand-fixing ecological function conservation area that covers an area of 2,300 square kilometres. The planting of 19 million trees between 2000 and 2005 has increased the tree canopy.

Social participation is another important element, which involves soliciting recommendations from farmers and pastoralists and mobilizing citizens, especially women and children, to participate in anti-desertification activities such as plantings.

Website: www.shenyang.gov.cn

B. Constraints and obstacles

24. Local authorities face the following challenges:

(a) The necessary infrastructure is lacking, mostly in developing countries, to handle increases in urban migration as a result of desertification; and

(b) Effective water demand management and water conservation plans are lacking.

C. Conditions needed for effective implementation

25. Conditions needed for effective implementation of projects to combat desertification are the following:

(a) The United Nations Convention to Combat Desertification calls for a bottom-up and participatory approach in identifying, implementing, monitoring and evaluating projects that combat desertification and mitigate the effects of drought. Local authorities, therefore, need to be consulted on drought management;

(b) Local authorities must develop and implement water-related drought mitigation and drought adaptation strategies, which include water infrastructure improvements and water conservation efforts;

(c) Local authorities need to preserve natural resources and effectively manage their ecosystem;

(d) Local authorities in developing countries must better manage the growing influx of environmental refugees by providing basic infrastructure and services;

(e) Local authorities call on national Governments to take proper account of land degradation within their environmental policies (1999 World Forum of Mayors on Cities and Desertification, Bonn, Germany).

VI. Africa

A. Introduction

26. While poverty remains the biggest challenge facing the African continent at present, Africa is especially vulnerable to the effects of each of the thematic issues of the sixteenth session of the Commission on Sustainable Development.

27. In Africa, agriculture is in many instances subsistence in nature, with a high dependence on rainfall (over 96 per cent) for irrigation. As a result, agriculture is highly vulnerable to climate variability, seasonal shifts and changes in precipitation patterns. Agricultural yields and food production are steadily declining, while sprawling urban populations are growing rapidly, and, as a result, food security is significantly and increasingly under threat. A range of other compounding factors include the spread of invasive species, which is also closely linked to climate variability. The linkages and compounding effects of these factors are important to note when seeking long-term and sustainable solutions.

28. Africa is rapidly urbanizing. For over half of the urban population, however, basic human needs of water, shelter and sanitation go unmet. Where infrastructure exists, it is often under severe strain.

29. Water scarcity is already increasing in Africa due to greater water demand. By 2025, it is projected that around 480 million people in Africa will face either water scarcity or accompanying stress, with a subsequent potential increase in water-related conflicts. Almost all of the 50 river basins in Africa are transboundary.

30. Africa is the continent most severely affected by desertification. Two thirds of the continent is arid land, and this land mass is growing annually as a result of extreme weather events caused by climate change.

31. Sustainability in Africa is dependent on strong economic growth, poverty alleviation and environmental awareness and protection. In order for the three pillars of sustainable development to be achieved, however, it is imperative that they be coupled with good political governance and efficient urban management and service delivery.

B. Agriculture

1. Evaluation of progress

32. Food insecurity in Africa has been attributed to the global trade regime, poverty, population growth, rapid urbanization, the spread of invasive species and climate change.

33. Urban food security issues in Africa tend to be obscured by what are considered more urgent urban problems, such as unemployment, decaying infrastructure, housing shortages due to large-scale migration and inadequate service provision.

34. Urban agriculture can enhance food supply to the urban poor.

Local examples

11. Wabiduku, Kiwatule Parish, Uganda

The Wabiduku peri-urban agricultural project was implemented to enhance the productivity of food crops and animal production units as a source of income and for food security, and to promote the maintenance of existing flower gardens and the establishment of new ones.

Benefits of this project have been food security, nutritional improvement in the slum area, waste management from composting practices, improved soil fertility, and the identification and development of sustainable markets for food products and flowers.

Broadly speaking, the Project has also improved livelihoods, made families healthier, created prosperous businesses and fostered progressive communities.

Website: www.cityfarmer.org/wabiduku.html

2. Constraints and obstacles

35. Urban local authorities in Africa face the following challenges:

(a) Urban agriculture is slow to gain acceptance as a legitimate land-use practice;

(b) There is little understanding of the important role urban agriculture can play in public health, gender issues and poverty reduction.

3. Conditions needed for effective implementation

36. The following conditions are needed for effective implementation:

(a) Support (or allowance) for the formation of urban farmers' associations or cooperatives;

(b) Formal recognition of the role of urban agriculture in society;

(c) Establishment (or allowance) for local produce markets;

(d) Allowing vacant land to be used for agricultural purposes;

(e) Integrating urban agriculture into urban planning and development;

(f) Subregional famine early-warning systems that are in place must provide urban centres with timely information on food supply, market prices and disaster preparedness;

(g) Urban planners must design housing areas that can accommodate urban agriculture;

(h) All levels of Government in Africa need to collaborate on building and retaining agricultural capacity in Africa.

C. Land and rural development

1. Evaluation of progress

37. Africa is urbanizing rapidly, at the rate of 5 per cent a year. Africa is the continent which is urbanizing most rapidly; 40 per cent of the continent's population now lives in cities.

38. Africa's urban population is growing at an alarming rate, and this increase is placing a huge strain on the supply of adequate drinking water. Increased pollution of water resources threatens the fragile balance of the water ecosystems.

39. Development in coastal regions is particularly worrying in Africa as a result of climate change. More than 25 per cent of the population of Africa lives within 100 kilometres of the coast, and projections suggest that the number of people at risk from coastal flooding will increase from 1 million in 1990 to 70 million in 2080. Urban centres and ports such as Cape Town (South Africa), Maputo (Mozambique) and Dar es Salaam (United Republic of Tanzania), for example, will be adversely impacted.

Local example

12. Cairo

To improve the living environment of more than 500,000 inhabitants by upgrading and rehabilitating the Manshiet Nasser informal settlement by relocating a percentage of inhabitants into a planned settlement equipped with all services and amenities.

The settlements are fully equipped with complete piped networks for water supply and sanitation, a road network, open space, vocational training and health-care centres, libraries, schools, a phone service network, and environmentally friendly crafts workshops. Additionally, residents are provided with a soft loan, 90 per cent of which must be paid back over 40 years, giving the residents a sense of ownership.

The project is based on a participatory socio-economic survey and mechanisms of transparent dialogue with local inhabitants in both the planning and management processes.

2. Constraints and obstacles

40. Local development authorities in Africa face a lack of effective urban investment, planning and management to deal with urban migration.

3. Conditions needed for effective implementation

41. The following conditions are needed for effective implementation:

(a) Local authorities need to be engaged in public-private partnerships that prioritize small-scale community investments; private innovation and investment can provide a cost-effective strategy;

(b) Local authorities need to meet the infrastructure needs of the growing migration of rural dwellers to bigger communities.

D. Drought

1. Evaluation of progress

42. Drought in Africa is directly due to climate change, but also a result of rapid urbanization across the continent. Cities such as Dakar, Johannesburg and Nairobi, for example, have overexploited local resources and are forced to bring in water from 200 to 600 kilometres away. Abidjan, Addis Ababa and Lusaka are virtually extracting too much water from the ground aquifers as they dig deeper for water.

43. The scarcity of water resources has also sparked increased conflicts among cattle breeders who travel hundreds of kilometres, usually into rival community land, to find pasture for their animals.

Local examples

13. Siongiroi, Kenya

The Siongiroi community is classified as having a semi-arid ecosystem that has experienced severe droughts that have cost the community livestock and maize harvests, and forced community members to walk great distances to retrieve water.

In partnership with Waterlines and Kenya rural water development, the community has implemented several water security programmes to harvest the rain during the short and long rains. These projects include the construction and rehabilitation of dams, the survey and drilling of bore holes and shallow wells, and the construction of water catchment tanks for community use.

2. Constraints and obstacles

44. Local development authorities in Africa face ineffective drought monitoring and drought preparedness or a lack of drought monitoring and preparedness, resulting in drought being handled as disaster management.

3. Conditions needed for effective implementation

45. The following conditions are needed for effective implementation:

(a) Local authorities need to improve water pollution and sanitation practices;

(b) Local authorities need to improve water service delivery by fixing leaks and stopping illegal connections;

(c) Local authorities need to support and promote traditional water collecting and storing methods.